

Please amend the paragraphs on page 12 spanning line 29 to page 13 line 5 to read as follows:

The inventor of the present invention has conducted focused research into the features of the two-dimensional code patterns described above, which has cumulated in the completion of the present invention, which achieves efficient and accurate information management in the inter-process physical distribution in the semiconductor manufacturing processes by utilizing two-dimensional code patterns at various stages in the semiconductor manufacturing processes.

The following is a detailed explanation of embodiments in which two-dimensional codes e.g., barcodes, according to the invention are used at various stages in the semiconductor manufacturing processes.

IN THE CLAIMS:

Please amend claims 1, 4, 6, 7, 9, 10 14, 16, 17,18 and 21 as follows:

1. (Five Times Amended) A semiconductor device having at least one semiconductor chip manufactured from a wafer, said semiconductor chip comprising said device and having a two-dimensional code pattern for information management provided on a surface of said at least one semiconductor chip with the pattern representing chip ID information, and said two-dimensional code pattern is comprised of a plurality of square blocks arranged in a matrix in a predetermined two-dimensional region.

4. (Four Times Amended) A semiconductor device manufactured using a lead frame, with the lead frame having a two-dimensional code pattern for information management

provided on said lead frame to which semiconductor chips are bonded, with the pattern representing frame ID information, and said two-dimensional code pattern is comprised of a plurality of square blocks arranged in a grid in a predetermined two-dimensional region.

6. (Twice Amended) A semiconductor device according to claim 4, wherein: said frame ID information is made to correspond to chip ID information provided as a two-dimensional barcode pattern for information management for each chip.

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7. (Four Times Amended) A semiconductor device having at least one semiconductor chip sealed by resin, and having a two-dimensional code pattern for information management provided at an outer surface of said resin and representing product ID information, and said two-dimensional code pattern is comprised of a plurality of square blocks arranged in a matrix in a predetermined two-dimensional region.

9. (Twice Amended) A semiconductor device according to claim 7, wherein: said product ID information corresponds to chip ID information provided as a two-dimensional barcode pattern for information management for each chip.

10. (Twice Amended) A semiconductor device according to claim 7, wherein: said product ID information corresponds to frame ID information provided as a two-dimensional barcode pattern for information management on a lead frame to which semiconductor chips are bonded.

N. (Four Times Amended) An information management system for semiconductor devices, having at least one semiconductor chip that implements management of information related to said semiconductor devices separately for individual semiconductor devices comprising:

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a read device that reads chip ID information, said chip ID information is provided on said semiconductor chip as a two-dimensional barcode pattern for information management for each chip, said two-dimensional barcode pattern is comprised of a plurality of square blocks arranged in a matrix in a predetermined two-dimensional region; and

4
a management unit that registers said chip ID information thus read and manages individual semiconductor manufacturing processes based upon said chip ID information thus registered.

14. (Four Times Amended) An information management system for semiconductor device manufactured using a lead frame, which system implements management of information related to said semiconductor devices separately for individual semiconductor devices comprising:

a read device that reads frame ID information, said frame ID information is provided on said lead frame as a two-dimensional code pattern for information management, said two-dimensional code pattern is comprised of a plurality of square blocks arranged in a matrix in a predetermined two-dimensional region; and

a management unit that registers said frame ID information thus read and manages individual semiconductor manufacturing processes based upon said frame ID information thus registered.

16. (Four Times Amended) An information management system for semiconductor devices having semiconductor chips sealed by resin, which system implements management of information related to said semiconductor devices separately for individual semiconductor devices comprising:

SUB 11/1/00 a read device that reads product ID information, said product ID information is provided as a two-dimensional code pattern for information management at an outer surface of said resin, said two-dimensional code pattern is comprised of a plurality of square blocks arranged in a matrix in a predetermined two-dimensional region; and

a management unit that registers said product ID information thus read and manages a product shipping process based upon said product ID information thus registered.

17. (Twice Amended) An information management system for semiconductor devices according to claim 16, wherein: said product ID information corresponds to chip ID information provided as a two-dimensional barcode pattern for information management for each chip.

18. (Twice Amended) A semiconductor device according to claim 16, wherein: said product ID information corresponds to frame ID information provided as a two-dimensional